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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
TAYLOR, BARRY W	
ART UNIT	PAPER NUMBER
2643	

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,762	SHIMURA ET AL.	
	Examiner	Art Unit	
	Barry W Taylor	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,11,12,14 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,11,12,14 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/9/04; 6/28/04; 3*18/05.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-8, 11-12, 14 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koeman et al (5,731,706 hereinafter Koeman) in view of Valenti et al (US 2002/0041565 Valenti et al hereinafter Valenti).

Regarding claims 1, 3 and 17. Koeman teaches a system for measuring cross-talk (Title, abstract) comprising:

polling means included in an outside line of an xDSL circuit installed in an office for pulling a subscriber line (see switch matrix 200 figures 5-6);

noise level measuring means for measuring a level of cross-talk noise on the subscriber line (see receiver 208 and 218 in figures 5-6); and

decision means for determining, based on the level of cross-talk noise measured, whether or not the subscriber line is usable (see microprocessor 212 figures 5-6 wherein signals are provide to the microprocessor allowing the microprocessor to determine whether or not the subscriber line is usable or not by comparing the values to a look-up table---see 54 figures 5-6).

According to Applicant's newly added claim language and arguments, Koeman fails to teach wherein the measured cross-talk noise characteristic is cross-talk **existing** on the subscriber telephone line due to interference from other subscriber telephone lines. Instead, Koeman only focuses on home network line pairs having frequency in range beyond the newly recited range appearing in Applicant's amended claim language (see Amendment "C", paper number 13, dated 6/14/2004 and argument appearing on the last three lines of page 11). In other words, Koeman only focuses on home network lines having frequency range above xDSL services (i.e. between 25 kHz to 1.1 MHZ).

The reason for Koeman not considering xDSL frequency range is that Koeman tester is to be used during **installation phase** enabling installers the ability to verify proper transmission performance (see BACKGROUND of Koeman) of wire pairs. Modifying Koeman tester to include testing for cross-talk after installation phase (i.e. in-service and/or existing) would only add flexibility to the tester as taught by Koeman.

Valenti provides the hardy needed tester (paragraphs 0034 to 0036) wherein volt meter (last two lines of paragraph 0046) is used to determine if crosstalk exists on bundled telephone cable (abstract, paragraphs 0046-0050). Valenti indeed characterizes crosstalk on a loop-by-loop basis enabling for a much more granular crosstalk characterization of plant (paragraphs 0010-0011) by focusing on limited frequencies (i.e. ISDN and ADSL) having unique crosstalk power spectral density (see figure 11 and paragraph 0036). Valenti also uses the terms "NEXT" and "FEXT" to classify the two types of crosstalk (paragraphs 0041-0041). Valenti even identifies services that are generating crosstalk on a pair that may not even be carrying DSL services (see middle of paragraph 0046). Valenti also uses measures crosstalk noise of subscriber line only within an xDSL transmission frequency band (see figures 5-7) including SDSL (see Table 2 page 5) to properly identify disturbers (paragraphs 0052-0054). Valenti is capable of identifying mixed crosstalk when at least two different services are present in a binder (paragraph 0055).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify the tester as taught by Koeman to use limited frequencies as taught by Valenti for the benefit of testing for crosstalk after installing new bundles of cable thereby creating a more flexible tester that may be used not only during installation but a tester that may be used after installation as well.

Regarding Claim 2. Valenti teaches the measurement of crosstalk is made without injecting a test tone onto the subscriber telephone line (see figure 2 wherein voltage measurement of TIP an RING used) only within a frequency band up to 1.1 MHZ (paragraphs 0036, 0041 and 0050, see frequencies listed in figures 4-10).

Regarding claim 4. Koeman discloses using a switch matrix 200 figures 5-6 for selecting a set of wire pairs 1-4 to be tested.

Regarding claims 5 and 7. Koeman teaches wherein the noise level measuring means comprises:

a voltage measuring circuit for measuring cross-talk noise voltage input via relays (see figures 5-6 wherein a signal source 202 produces stimulus signal input via relay matrix 200 and measuring circuit (i.e. RECEIVER) receives response signal and converts the response signal to a digital signal 208 and transforms the digital signal to noise spectrum by using FFT processor 210); and

an ADC circuit ...(see figures 5-6 wherein a signal source 202 produces stimulus signal input via relay matrix 200 and measuring circuit (i.e. RECEIVER) receives response signal and converts the response signal to a digital signal 208 and transforms the digital signal to noise spectrum by using FFT processor 210); and

an FFT circuit ... (see figures 5-6 wherein a signal source 202 produces stimulus signal input via relay matrix 200 and measuring circuit (i.e. RECEIVER) receives response signal and converts the response signal to a digital signal 208 and transforms the digital signal to noise spectrum by using FFT processor 210).

Regarding claims 6 and 8. Koeman teaches wherein the decision means comprises means for comparing the noise spectrum data with a template for noise level decision to thereby determining whether or not the subscriber line is usable (see figures 5-6 wherein a look-up table (i.e. template) is used for comparing the FFT signal (i.e. noise spectrum) to values stored in look-up table 54). Valenti also teaches xDSL frequency range (paragraphs 0036, 0041 and 0050, see frequencies listed in figures 4-10).

Regarding claims 11-12, 14 and 20. Valenti teaches noise levels of existing xDSL services operating in xDSL frequency ranges (paragraphs 0036, 0041 and 0050, see frequencies listed in figures 4-10).

Regarding claim 18. Valenti teaches ISDN signal (paragraphs 0036, 0041 and 0050, see frequencies listed in figures 4-10).

Regarding claim 19: Valenti teaches a second xDSL channel (paragraph 0055).

Response to Arguments

2. Applicant's arguments filed 11/30/2004 have been fully considered but they are not persuasive.

a) Regarding Applicant's remark on page 9, last seven lines, wherein Applicant's contend that Koeman is not concerned with xDSL frequency band and thus teaches to measure beyond the xDSL frequency and up to 100 MHZ as Koeman. See Koeman et al's use a range of 1-100 MHZ. See column 2, lines 56-63 indicating sampling at .15 and .25 MHz intervals over the range 1 MHZ through 100 MHZ.

The Examiner notes that Koeman on the very next line (i.e. col. 2 lines 64-65) indeed reveals frequencies of 0.1 MHZ to 155 MHZ in 0.1MHZ intervals which equates to 100 kHz reading on Applicant's xDSL frequencies shown in figure 1. Koeman teaches collecting pair-to-pair NEXT loss responses span the frequency range of 0.1 MHZ to 155 MHZ (see col. 3 line 61). Furthermore, Koeman figure 2 list pair-to-pair NEXT loss response having frequency range of 0 to 100 MHz which include xDSL frequency band and figure 3 list these frequencies as Power Sum cross-talk loss expressed in dB. Therefore, Koeman frequencies of 0 to 100 MHz clearly fall within known xDSL frequencies range of 25 KHZ to 1.1 MHz.

b) Next, Applicant's argue that Valenti claims priority to U.S. Provisional Applicants 60/222,734, filed August 3, 2000 and 60/262,548 filed January 17, 2001. It is only the subject matter of U.S. 60/222,734 which is prior art to the present application (see Applicant's remarks starting on line 8 and continuing to last page 11).

The Examiner notes that Provisional Application 60/222,734 was filed before Applicant's invention. Next, the Examiner notes that Koeman teaches tester used during installation phase enabling installers the ability to verify proper transmission performance and modifying Koeman to include testing for cross-talk after installation phase (i.e. in-service and/or existing) would only add flexibility to the tester as taught by Koeman in view of Valenti.

Valenti provisional application (60/222,734) teaches a tester wherein volt meter is used to determine if crosstalk exist on bundled telephone cable (see at least last two

lines of paragraph 0046 wherein a spectrum analyzer or a selective volt meter used). Realizing this and the fact that provisional application 60/222,734 reveals the same voltmeter being used. Fore example, 60/222,734 page 1, first paragraph and page 3, last five lines state that it is therefore an object of the present invention to overcome the deficiencies evident in the prior art **in order to be able to take measurements in the DSL band and perform calculations** so that prediction and/or identification of crosstalk between pairs within a cable can be performed. Provisional Application 60/222,734 page 4, second full paragraph reveals that measurements and crosstalk source identification are performed by the invention with automated algorithms wherein the crosstalk data is collected and used by a spectrum management system **to enable more efficient spectrum management** and page 5, second to last paragraph reveals a new "broadband test head" can be installed in the office to automatically and routinely provide current information on loop make-ups and crosstalk and page 8, second full paragraph even account for individual types of crosstalk sources or crosstalk couplings related to particular pair in a cable, thus a system can characterize crosstalk on a loop-by-loop basis has a potential to yield a much more **granular crosstalk characterization of the plant**. Provisional Application 60/222,734 even teaches measuring NEXT from an upstream ADSL (i.e. within xDSL frequency band) source for a number of pair-to-pair combinations. These **NEXT PSDs** are correlated with the **PSD** crosstalk templates of some known sources (see Provisional 60/222,734 starting on the last two lines of page 8 and continuing to page 9). Provisional Application 60/222,734 (see last three lines on page 10 continuing to page 11) **teach the ability to identify the**

source of a distrurber from a cross-talk measurement. The system measures the cross-talk on a cable pair and from that measurement identifies the source of the cross-talk. Once the source is identified the information may be used to populate a database that can be used for spectrum management. **The invention measures the crosstalk on an individual basis and the types and numbers of crosstalkers in a cable or in an individual cable binder, can be measured, recorded, and tracked** (Provisional Application 60/222,734---last paragraph page 11) **allowing more customers to be served**. Provisional Application 60/222,734 pages 12-14 reveal **a broadband test head used to access loop through metallic test and directly measure received crosstalk.** Provisional Application 60/222,734 even discloses that a DSL modem may itself measure crosstalk (page 13). **More importantly Provisional Applicantion 60/222,734 discloses that the invention could be used for any types of transmission systems operating on multi-pair metallic cables that are not specifically called DSLs. The invention could be applied to campus networks or private LANs linked by twisted pairs (page 15).**

The Examiner notes that Applicant's have already admitted that Koeman polls a LAN circuit (see paper dated June 14, 2004 page 12, first three lines). Therefore, Provisional Application 60/222,734 also supports Examiners motivational statement of modifying Koeman tester to include testing for cross-talk after installation phase (i.e. in-service and/or existing) would only add flexibility to the tester as taught by Koeman and already disclosed by Provisional Application 60/222,734.

Conclusion

3. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry W. Taylor, telephone number (571) 272-7509, who is available Monday-Friday, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached at (571) 272-7499. The facsimile phone number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2600 receptionist whose telephone number is (571) 272-2600, the 2600 Customer Service telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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